

## **MARTINSVILLE WATER UTILITY CUSTOMER REPORT ON SUPPLY AND IMPROVEMENTS**

**April 23, 2015**

Over the past several years our customers have voiced concerns about the safety of the water that we supply. This is understandable given that in late 2002 PCE (Tetrachloroethene) was found at low levels in ground water and in 2012 the EPA designated the area a "Super Fund Site". Prior to that time routine testing found PCE only sporadically and at very low levels. Most tests showed no contamination and therefore it was difficult to determine if a problem actually existed or perhaps there was a testing issue because of the very low levels. Martinsville obtains its water supply from three wells located on the northwest side of the City in the area of Cunningham and Elliott Streets. Of the three wells Well Number Three (3), the well closes to the square, is where contamination began to show up on a regular basis.

The Environmental Protection Agency (EPA) and Indiana Department of Environmental Management (IDEM) set the Maximum Contaminant Level (MCL) for a variety of chemicals and metals. EPA defines MCL as "The threshold concentration of a contaminant above which water is not suitable for drinking" and further defined in the Safe Drinking Water act, as "the maximum permissible level of a contaminant in water which is delivered to any user of a public water system". For PCE the MCL is 5 parts per billion. To put that number in perspective, it would be the equivalent of one drop in 2,600 gallons; about 8 inches on a trip around the world; and less than 12 seconds in a 70 year life.

Knowing that the Water Utility and our customers were facing a potential serious problem, the extent of which was still unknown, it was decided to take Well 3 out of production and use only Wells 4 and 5. However, we were concerned that if Well 3 was not pumped the contamination would go to Wells 4 and 5. Therefore it was decided to pump Well 3 but not discharge the water into the system. This action protected Wells 4 and 5 and also allow for continuing testing of Well 3.

Beginning in November of 2002 each of the three wells was tested for PCE on average every 11 days. By early spring it was obvious from the testing that the contamination was a long term problem. IDEM and an outside engineering firm were consulted along with the City financial advisors to investigate the feasibility of moving the well field. It soon became clear that this was not feasible in the short term as in addition to new wells a water treatment plant would also be required. Cost estimates for a new well field and treatment plant ranged from 5 to 9 million dollars and would take up to five (5) years to bring on line. In addition, the distribution system would have to be upgraded to accommodate the new wells and treatment plant. Upgrade of the distribution system was estimated to cost an additional cost of six (6) to nine (9) million dollars. The City began looking for a new well field site and one was identified but given that bringing a new well field into production was going to take several years and require a large water rate increase, an alternative solution was sought to remove the contamination.

During 2003 the water customers were notified three (3) separate times of the contamination, in May, in June with the Consumer Confidence Report, and again in September. From November of 2002 to November of 2003 a series of thirty- four (34) tests were made on the wells. During this period Well 3 continued to show contamination with the average level being 5.6 parts per billion.

In the summer months when water demand is high all three wells must be in production. To meet that demand the water from Well 3 was blended with the water from the other uncontaminated wells. Based on continuing testing, bending of the water before it entered the distribution system would allow the water delivered to our customers to meet EPA and IDEM MCL levels. In May of 2003 we sent a letter to each customer informing them of this action. Testing of each well continued in 2004 at two weeks intervals. During this period the average contamination level of Well 3 was 3.5 parts per billion.

In 2004 while managing well production so that water delivered to the customer met EPA and IDEM standards the City begin a multi-pronged pursuit of a new well field and a near term method to remove the contamination. An investigation by several State agencies, with the assistance of the City, determined that the source of the contamination was Masterware, a former drying cleaning business located on the court house square. With this discovery the City filed a lawsuit for damages to pay for a water treatment plant. Also in 2004, while the lawsuit was progressing, the City hired a consultant to design a water treatment plant that could be constructed quickly and at a reasonable cost. Two (2) methods of treatment were found, air-stripping and granulated activated carbon (GAC).

Air-stripping uses large blowers to move air through contaminated water that falls from sprayers at a height of approximately fifty (50) feet. The advantage of this method is operational cost is lower, being primarily the electric cost to run the blowers. The disadvantage is this method has a fixed level of contamination that can be removed. Contamination above the fixed designed levels would not be removed. GAC was more costly to operate as the carbon would have to be replaced at intervals. However, with GAC there would be an almost certainty of removing all of the contamination. Complete removal can be assured regardless of the contamination level in the wells. Further, the City could monitor the carbon so that replacement could be scheduled to avoid contamination from entering the distribution system.

Design of a GAC system was completed in late 2004 with construction beginning in January of 2005. The treatment plant was completed in late spring at a cost of 1.4 million dollars and placed into service on June 20, 2005. Financing of the treatment plant was through a short term bond that was eventually paid off when the City won the lawsuit against Masterware.

To ascertain the effectiveness of the GAC system testing was performed of all three (3) wells and the treated water on a weekly basis. After over three (3) years of testing and operating experience it was determined that testing monthly would be sufficient to manage the GAC filters and assure the treated water met all EPA and IDEM requirements.

Even with the GAC treatment plant in operation the City realized that it was in the best long term interest of our customers for a new well field and treatment plant to be developed. Due to the projected cost for the distribution system improvements, increased storage capacity, new wells and new treatment plant, being in excess fourteen (14) million dollars which would have caused water rates to sky rocket, the decision was made to address the problem in phases. The first phase was improvements to the water distribution and storage capacity. This project took place from 2007 to 2009 and included replacement of the 1 million gallon Sycamore Street tank and added a second 1.5 million gallon tank on the south side of the City. To provide connectivity to the new tanks and improve pressure throughout the City over forty-six thousand (46,000) feet of water main, most of it 12-inch, was installed. Total cost for this phase was approximately eight (8) million dollars and its completion allowed the City to move toward the next phase which is the identification and development of a new well field and treatment plant.

In 2009, soon after the distribution and storage project was completed, INDOT begin working on the environmental impact study for I-69 Section 5. One (1) of the areas identified for a possible well field was near the route of study for Section 5. During the next three (3) years the City worked with INDOT and their consultants to protect the potential well field site and to make provisions in the design for a large water main under interstate I-69. Just a few weeks ago the City provided I-69 Partners, the design-build firm for Section 5, a cost estimate to relocate existing water mains and also to install an 18-inch water main to the west side of the interstate. Under a draft agreement presented to the Board of Works these cost would be 100% reimbursed by the state through the I-69, Section 5 project.

The location, south of Indian Creek is not the only site that has been identified for a well field. A second site north of the City has also been investigated and it is believed it will meet the water utility's needs. However, the cost to bring the water to the City may be as much as one (1) million dollars or more than the south site. A final location has not been selected. Before a final decision is made field testing of the sites must be performed to confirm the quality and quantity of water. It is hoped that this process can begin this summer.

In summary, the customers of the Martinsville Water Utility can be sure of the following:

1. The water treatment process absolutely insures that the water used by our customers is safe and meets all EPA and IDEM standards.

2. The water is tested frequently and test results are reported to IDEM at regular intervals.
3. Frequent testing provides advanced notice of when the GAC carbon needs to be changed so that only water meeting clean water standards enters the system.
4. Since 2004 we have been working steadily toward a new well field and making the necessary improvements to the water system to accommodate new wells and a treatment plant when it is developed.
5. Use of GAC treatment has enabled the utility to provide safe water while studying solutions and making decisions that are in the best long term interest of our customers in every aspect, from financial, to quality and quantity.

Our goal is to provide a safe and abundant water supply well into the next generation at the lowest possible cost. Some people believe it is taking too long to develop the new wells and treatment plant, but it is a complicated and costly venture and takes time. Be confident that the Martinsville Water Utility will continue to provide safe and clean water while striving to keep cost as low as possible.

If you have questions or would like additional information on this article please contact the Martinsville Utility Office at 765-342-2449.